

IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE

AMPEX CORPORATION,)	
)	
Plaintiff,)	
)	
v.)	Civil Action No. 04-1373-KAJ
)	
EASTMAN KODAK COMPANY, ALTEK)	
CORPORATION, and CHINON)	
INDUSTRIES, INC.,)	
)	
Defendants.)	

MEMORANDUM OPINION

Jack B. Blumenfeld, Esq., Julie Heaney, Esq., Morris, Nichols, Arsht & Tunnell LLP,
1201 N. Market Street, P.O. Box 1347, Wilmington, Delaware 19899; Counsel for
Plaintiff.

Of Counsel: Jesse J. Jenner, Esq., Sasha G. Rao, Esq., Ropes & Gray LLP,
1251 Avenue of the Americas, New York, NY 10020.

Norman H. Beamer, Esq., Gabrielle E. Higgins, Esq., Ropes & Gray LLP, 525
University Avenue, Palo Alto, CA 94301.

James E. Hopenfeld, Esq., Ropes & Gray LLP, 700 12th Street, NW,
Washington, DC 20005.

Paul M. Lukoff, Esq., David E. Brand, Esq., Prickett, Jones & Elliott, P.A., 1310 King
Street, Wilmington, Delaware 19801; Counsel for Defendants.

Of Counsel: William F. Lee, Esq., Donald R. Steinberg, Esq., Michael J.
Summersgill, Esq., Wilmer Cutler Pickering Hale and Dorr LLP, 60 State Street,
Boston, MA 02109.

S. Calvin Walden, Esq., Wilmer Cutler Pickering Hale and Dorr LLP, 399 Park
Avenue, New York, NY 10002.

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JORDAN, District Judge

I. INTRODUCTION

This is a patent infringement case. Before me are the parties' requests that, pursuant to *Markman v. Westview Instruments, Inc.*, 52 F.3d 967 (Fed. Cir. 1995) (en banc), *aff'd*, 517 U.S. 370 (1996), I construe the disputed claim language¹ of U.S. Patent No. 4,821,121 (issued April 11, 1989) (the "'121 patent"). Plaintiff Ampex Corporation ("Ampex") and Defendants Eastman Kodak Company ("Kodak"), Altek Corporation ("Altek"), and Chinon Industries, Inc. ("Chinon") (collectively "Defendants") have fully briefed their positions and argued them before me. Jurisdiction is proper under 28 U.S.C. §§ 1331 and 1338.

II. BACKGROUND

A. Procedural Background

Ampex is the owner, by assignment, of the '121 patent. ('121 patent.) It filed its initial complaint for patent infringement on October 21, 2004 (Docket Item ["D.I."] 1), and amended the complaint on October 29, 2004 (D.I. 12) and September 8, 2005 (D.I. 38, the "Second Amended Complaint"). Ampex accuses Defendants of infringing claims 7, 8, and 10-15 of the '121 patent (D.I. 300 at 1), and of willfully infringing those

¹By my count, the parties have asked me to construe 99 terms. (D.I. 305 at 1-53.) While a general interest in the terms of the patent is understandable, I cannot, consistent with my judicial responsibilities, answer questions that may be of no more than academic interest. Therefore, I have endeavored to construe only those terms that, based on the papers submitted, appear to be dispositive of issues brought to my attention.

It should also be noted that, in their claim construction brief, Defendants asked the court to find that claims 8, 12, and 14 were invalid for indefiniteness. (D.I. 299 at 40.) The validity of a claim is not an issue of claim construction, but should have been addressed in a motion for summary judgment. I will not convert Defendants' claim construction argument into a motion for summary judgment.

claims (D.I. 38 at ¶ 16). In their answer to the Second Amended Complaint (D.I. 42), Kodak and Chinon deny infringement and assert a counterclaim seeking a declaratory judgment of invalidity, unenforceability, and non-infringement of the '121 patent. (*Id.* at ¶¶ 11, 25.) In a separate answer (D.I. 41), Altek denies infringement and asserts a counterclaim seeking the same relief. (*Id.* at ¶¶ 11, 26.)

B. The Disclosed Technology

The '121 patent is directed to a system that stores for later display a reduced size version of a video image. ('121 patent at 1:15-21, 1:27-30.) More specifically, the '121 patent discloses "[a]n electronic still store system ... [that] rapidly generates and outputs for display ... a still image frame comprising a plurality of selectively positioned, reduce [sic] size images." (*Id.* at 1:64-67.) Earlier still store systems could display multiple reduced images at one time, but the process required reading the full size images from the memory, reducing their size, and then inserting them into the display. (*Id.* at 1:34-38.) In other words, a reduced image was created each time it was needed, and the process of creating it resulted in a delay of several seconds before it was displayed. (*Id.* at 1:38-40.) In contrast, the claimed system generates a reduced size version once and then stores it for later use. (*Id.* at 2:1-5.) Therefore, the claimed system needs less time than earlier systems did to produce a multi-image display of the reduced versions, because the full size images have already been reduced. (*Id.* at 2:37-43.)

Eight of the claims in the '121 patent are involved in this case. (D.I. 300 at 1.) Independent claims 7, 8, 10, 12, and 14 relate to an apparatus for storing video images,

and independent claims 11, 13, and 15 are directed to a method for storing video images. ('121 patent at cols. 6-10.) As an example, claim 7 recites the following still store system:

An apparatus for storing video pixel data representing video images of a first resolution and, for each each [sic] of the images at said first resolution, a corresponding video image at a second resolution, comprising:

random access memory means for storing video pixel data representing one of a succession of full size images at said first resolution and a corresponding reduced size version thereof at said second resolution;

bulk memory means for receiving said video pixel data from said random access memory means and for storing said succession of full size images and the corresponding reduced size versions thereof, and for outputting upon a user's command, either a selected one of the successive full size images or selected ones of the corresponding reduced size versions thereof for direct transfer to, and storage back in, said random access memory means; and

means responsive to said random access memory means for selectively generating one of said corresponding reduced size versions from the respective full size image in said random access memory means, and for transferring the video pixel data representing [sic] and the corresponding reduced size version back to the contents of said random access memory means.

(*Id.* at 6:23-48.)

III. APPLICABLE LAW

Patent claims are construed as a matter of law. *Cybor Corp. v. FAS Techs., Inc.*, 138 F.3d 1448, 1454-56 (Fed. Cir. 1998) (en banc). "[T]he words of a claim 'are generally given their ordinary and customary meaning.'" *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312 (Fed. Cir. 2005) (en banc) (quoting *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1582 (Fed. Cir. 1996)). That ordinary meaning "is the meaning that the term would have to a person of ordinary skill in the art in question at the time of the invention." *Id.* at 1313.

To determine the ordinary meaning, the court should review “the same resources as would” the person of ordinary skill in the art. *Multiform Dessicants, Inc. v. Medzam, Ltd.*, 133 F.3d 1473, 1477 (Fed. Cir. 1998). Those resources include “the words of the claims themselves, the remainder of the specification, the prosecution history, and extrinsic evidence concerning relevant scientific principles, the meaning of technical terms, and the state of the art.” *Innova/Pure Water, Inc. v. Safari Water Filtration Sys., Inc.*, 381 F.3d 1111, 1116 (Fed. Cir. 2004).

“[T]he claims themselves provide substantial guidance as to the meaning of particular claim terms.” *Phillips*, 415 F.3d at 1314. Both “the context in which a term is used in the asserted claim” and the “[o]ther claims of the patent in question” are useful for understanding the ordinary meaning. *Id.*

“[T]he specification ‘is always highly relevant to the claim construction analysis. Usually, it is dispositive; it is the single best guide to the meaning of a disputed term.’” *Id.* at 1315 (quoting *Vitronics*, 90 F.3d at 1582). In short, the claims “must be read in view of the specification, of which they are a part.” *Markman*, 52 F.3d at 979. Thus, “[t]he construction that stays true to the claim language and most naturally aligns with the patent’s description of the invention will be, in the end, the correct construction.” *Renishaw PLC v. Marposs Societa’ per Azioni*, 158 F.3d 1243, 1250 (Fed. Cir. 1998).

On occasion, “the specification may reveal a special definition given to a claim term ... that differs from the meaning it would otherwise possess. In such cases, the inventor’s lexicography governs.” *Phillips*, 415 F.3d at 1316 (citing *CCS Fitness, Inc. v. Brunswick Corp.*, 288 F.3d 1359, 1366 (Fed. Cir. 2002)). The specification may also

“reveal an intentional disclaimer, or disavowal, of claim scope by the inventor ... [, which] is regarded as dispositive.” *Id.* (citing *SciMed Life Sys., Inc. v. Advanced Cardiovascular Sys., Inc.*, 242 F.3d 1337, 1343-44 (Fed. Cir. 2001)).

The court “should also consider the patent’s prosecution history.” *Markman*, 52 F.3d at 980. “Like the specification, the prosecution history provides evidence of how the [Patent and Trademark Office] and the inventor understood the patent.” *Phillips*, 415 F.3d at 1317 (citing *Lemelson v. Gen. Mills, Inc.*, 968 F.2d 1202, 1206 (Fed. Cir. 1992)).

The court may also rely on extrinsic evidence, which is “all evidence external to the patent and prosecution history, including expert and inventor testimony, dictionaries, and learned treatises.” *Markman*, 52 F.3d at 980. In particular, “dictionaries, and especially technical dictionaries, ... have been properly recognized as among the many tools that can assist the court in determining the meaning of particular terminology.” *Phillips*, 415 F.3d at 1318 (citing *Teleflex, Inc. v. Ficosa N. Am. Corp.*, 299 F.3d 1313, 1325 (Fed. Cir. 2002)). However, extrinsic evidence is “less significant than the intrinsic record in determining ‘the legally operative meaning of claim language.’” *C.R. Bard, Inc. v. U.S. Surgical Corp.*, 388 F.3d 858, 862 (Fed. Cir. 2004) (quoting *Vanderlande Indus. Nederland BV v. Int’l Trade Comm’n*, 366 F.3d 1311, 1318 (Fed. Cir. 2004)).

During claim construction, “[t]he sequence of steps used by the judge in consulting various sources is not important; what matters is for the court to attach the appropriate weight to be assigned to those sources in light of the statutes and policies that inform patent law.” *Phillips*, 415 F.3d at 1324.

IV. CLAIM CONSTRUCTION

A. “video image”; “video still store”

1. The Parties’ Proposed Constructions

The parties’ dispute over these claim terms focuses on whether the modifier “video” means that a still “video image” must be one extracted from a larger series of images portraying movement. Ampex argues that the term “video” should be construed based on the context in which it appears in the claims, and not independently. (D.I. 305 at 1.) Accordingly, Ampex asserts that “video image” should be construed to mean “an electronic signal representation of visual information displayable in visual form on a monitor or other display device.” (*Id.* at 3.) Based on this construction, a still image can be considered a “video image” even if it has no relation to a motion image. (*Id.*) In support of its proposed claim construction, Ampex relies on the specification of the ‘121 patent and extrinsic evidence in the form of dictionaries, other patents, and expert testimony. (D.I. 300 at 15-17.)

Defendants, on the other hand, assert that the term “video” should be construed, by itself, to mean “a series of related electronic images created for rapid display to allow the appearance of movement.” (D.I. 305 at 1.) Defendants would then have this construction of “video” applied to the terms “video image,” “video data,” “video pixel data,” and “video still store.” (D.I. 299 at 5.) For example, Defendants argue that “video image” means an “electronic signal representation of visual information that is one of a series of related electronic images created for rapid display to allow the appearance of movement.” (D.I. 305 at 3.) This proposed construction does not limit the term “video image” to motion videos. (D.I. 348 at 4.) But, according to Defendants’ construction,

the term “video” does limit the source of a still image. (*Id.*) In other words, a still video image is a single frame captured from a stream of video. (*Id.* at 5.) Defendants base their construction on the language of the specification, as well as extrinsic evidence regarding the use of the term “video” during the 1980s, which is when the application for the ‘121 patent was filed. (D.I. 299 at 6-8.) Defendants also contend that Ampex’s proposed claim construction would render “video” meaningless because it would allow any electronic image to be considered a “video image.” (*Id.* at 8-9.)

2. The Court’s Construction

The specification of the ‘121 patent intermingles its use of the terms “image” and “video image” (*compare* ‘121 patent at 1:15-17 *with id.* at 1:27-30), which may be the source of some confusion as to the meaning of these terms. However, when considered in its entirety, the specification does not use the term “video image” to mean only those still images that have been extracted from a stream of images. The specification states that “[t]he video input circuit ... may be another electronic still store system, a TV camera, or some other source of video data from which one or more frames of a video image may be captured.” (*Id.* at 2:65-3:1.) According to this statement, the claimed still store system may receive a “video image” from another system that stores still images. There is no requirement that the still image obtained from the “other” system must be one that was originally captured from a motion image. It can be any electronic image provided by the “other” still store system. Therefore, the term “video image” includes still images, regardless of whether they were originally generated from a stream of images giving the appearance of motion.

To the extent one might say the intrinsic evidence leaves the meaning of “video

image” ambiguous, the extrinsic evidence, particularly in the form of other patents, supports Ampex’s proposed claim construction because the term “video image” was often used to refer to any electronic image. One of Kodak’s own patents, U.S. Patent No. 5,440,343 (the “‘343 patent”),² states that “[t]he invention provides an electronic imaging system that records both motion and still video images.” (‘343 patent at 2:3-4 (cited by Ampex at D.I. 347, Ex. 43).) With respect to the still video images, the specification of Kodak’s patent further explains that, in still mode, “a high resolution still image is captured and recorded by the recording unit ... each time the record switch ... is depressed.” (*Id.* at 3:27-31.) Thus, Kodak used the term “video image” for a still image that was captured firsthand by the electronic imaging system, and not by extraction from a related motion image. European Patent No. 0051305, which is referenced by the ‘121 patent, also uses the term “video” to describe electronic images. (‘121 patent, References Cited.) Specifically, this patent uses the term “video signal” to refer to 2-dimensional picture information that was acquired using a scanner. (European Patent No. 0051305 at 5:23-29 (cited by Ampex at D.I. 308, Ex. 3).) Similarly, U.S. Patent No. 4,205,780 discloses a system that “includes a video camera ... mounted on the document scanner and positioned to capture the video image of each document.” (U.S. Patent No. 4,205,780 at 5:55-58 (cited by Ampex at D.I. 307, Ex. 10).) In both of these patents, “video” refers to an image that is obtained by scanning a document, and not from a motion image. This review of other patents, albeit brief, demonstrates that others of skill in the art likely understood “video image” to

²Kodak’s ‘343 patent was applied for on February 28, 1994. (‘343 patent (cited by Ampex at D.I. 347, Ex. 43).)

include any still image in electronic form.

Defendants' argument that Ampex's proposed construction essentially reads "video" out of the claims is not persuasive. The term "image," alone, is not limited to electronic representations of visual information. Rather, as Ampex contends, "image" is broader because it includes the depiction of visual information in other formats, such as transmission through a lens or reflection from a mirror (D.I. 346 at 10), or images captured in non-electronic form, such as a photograph or painting.³ Thus, Ampex's proposed construction does not render "video" superfluous. Accordingly, I will construe the term "video image" to mean "an electronic signal representation of visual information displayable in visual form on a monitor or other display device." I will also construe "video still store" to mean "a system capable of storing still video images."

- B. "video data"; "video pixel data"; "data set"; "image data set"; "the video data"; "the video pixel data"; "said video pixel data"; "the data sets"; "said image data sets"

1. The Parties' Proposed Constructions

The parties' dispute respecting these terms centers on the meaning of the term "data" when it is used in the context of a video still store system. The parties also disagree about the relationship between the first reference to "data" in each claim and subsequent references to "said data" or "the data." Ampex asserts that "data" should be construed to mean "information, in any form, representing a video image." (D.I. 305

³This is not to say that a non-electronic image, like a photograph, cannot become a "video image." It would become a "video image" if it were digitized and electronically stored.

at 7-8.) Ampex then argues that “said/the data” means “data representing the same image as the antecedent data.” (*Id.* at 9.) In other words, the later referenced “data” need not be exactly the same as the initial “data,” as long as it represents the same image. (D.I. 300 at 20-21.) Ampex claims support for its proposed claim construction in the preferred embodiments of the invention and the specification of the ‘121 patent. (*Id.* at 21-22.) Ampex also relies on extrinsic evidence, including dictionary definitions, expert testimony, and the claim construction arguments made by Kodak during licensing discussions with other companies. (D.I. 307, Exs. 16, 17; D.I. 346 at 13-14.)

Defendants assert that “data” simply means “numerical information.” (D.I. 305 at 7.) In line with this proposed construction, Defendants argue that “said/the data” can only mean “the data that is first referenced in the claims.” (*Id.* at 9.) Thus, Defendants contend that any subsequent use of the term “data” in the form “said/the data” refers to the same numerical information as the initial use of the term. (D.I. 299 at 10, 13.) The basis for Defendants’ asserted claim construction is the claim language, specification, and prosecution history of the ‘121 patent, as well as extrinsic evidence in the form of dictionaries and expert testimony. (*Id.* at 9-13.)

While the parties’ arguments focus almost exclusively on the meaning of “data,” none of the claims in the ‘121 patent use the term “data” by itself. Rather, claims 7, 8, 11, and 14 use the term “video pixel data” (‘121 patent at 6:23-48, 6:49-7:20, 7:65-8:14, 8:65-10:7), claim 10 uses the term “video data” (*id.* at 7:31-64), claim 12 uses the term “image data sets” (*id.* at 8:15-47), and claims 13 and 15 use the term “data sets” (*id.* at 8:48-64, 10:8-33). Although these terms were not discussed at length in the briefs,

both parties have submitted proposed constructions for them. Therefore, I will consider the arguments made regarding the term “data” when construing the terms that are actually present in the claims.

2. The Court’s Construction

The ordinary meaning of “data,” in the context of a digital system, is “numerical information.” See *The American Heritage Dictionary* (New College ed. 1982) (defining “data” as “numerical information in a form suitable for processing by computer”) (cited by Defendants at D.I. 301 at A-009). Ampex’s expert, Dr. Ligler, agreed that “data” refers to numerical information. When asked about the meaning of “video pixel data” in claim 7, Dr. Ligler stated that “[d]ata is represented using 1s and 0s which is mathematical data.” (D.I. 301 at A-632, 280:3-14.) Dr. Ligler went on to say that, when in stored form, “data” cannot be anything other than numbers. (*Id.* at A-633-634, 288:21-289:6.) Although Ampex submits dictionaries that define “data” broadly to mean “information” (D.I. 307, Exs. 16, 17), Ampex does not overcome the evidence, both intrinsic and from its own expert, showing that “data” is limited to numerical information when used in the context of a digital still store system.

The specification of the ‘121 patent further explains what is meant by “data, and more particularly the claim terms “video data,” “video pixel data,” “data set,” and “image data set,” in the context of the claimed still store system. In order for a video image to be stored in a digital still store system, such as the one claimed in the ‘121 patent, the image must be in digital format. (‘121 patent at 3:16-19.) According to the specification, in “digital sampled data form ... each pixel of video data is represented by three eight bit data bytes defining respectively luminance, red chrominance, and blue

chrominance components.” (*Id.* at 3:19-24.) Thus, once converted to digital form, every pixel in an image has three components, each of which has a particular numeric value. (*Id.* at 3:29-34.) These component values are then represented as a series of binary bits, with each bit being a one or a zero, and the resulting data being stored in the still store system. (See *id.*) Therefore, the specification confirms that, in a digital system, “data” refers to numerical information and “video data” refers to the numerical information that represents the pixel components of a video image.

There is no indication in the specification or claims that the terms “video data,” “video pixel data,” “data set,” and “image data set” were intended to have different meanings. On the contrary, they appear to be used synonymously. For example, even after the specification explains that a digital video image is composed of pixel components (*id.* at 3:19-24 (“each pixel of video data” has three components)), the specification continues to use the term “video data,” and not “video pixel data,” to refer to information representing a digital image (*id.* at 3:47-48 (“video data representing a frame of a video image”)). Also, the claims appear to use the terms “video data” and “video pixel data” interchangeably. Claim 8 recites a “random access memory means ... for storing the *video pixel data* presented at the input port” and a “bulk storage memory ... for presenting selected groups of *video data* at said input port for storage by said random access memory means.” (*Id.* at 6:53-55, 6:60-63 (emphasis added).) Thus, claim 8 uses “video data” and “video pixel data” to refer to the same data. Finally, the claims also use the terms “data set” and “image data set” to refer to information representing an image in the digital still store system. (*Id.* at 8:15-18 (“full

size image data sets representative of corresponding full size images”); *id.* at 8:48-51 (“A method of storing video pixel data for access and display comprising: providing data sets for a plurality of full size images”).) Since images stored in digital format are composed of pixel components, the terms “data set” and “image data set” must be referring to the same numerical information as the terms “video data” and “video pixel data.” Since these four “data” terms are used synonymously in the specification and claims, I will give them the same construction. I will construe “video data,” “video pixel data,” “data set,” and “image data set” to mean “numerical information representing the luminance, red chrominance, and blue chrominance components of each pixel in a video image.”

In each of the asserted claims, the term “said” or “the” is used in conjunction with a reference to “video data,” “video pixel data,” “data set,” or “image data set.” (*Id.* at cols. 6-10.) The parties appear to agree that the first use of one of these “data” terms in each claim provides an antecedent basis for later references in the form “said data” or “the data.” (D.I. 299 at 11; D.I. 346 at 12.) Since each “data” term refers to the numerical information representing the components of each pixel in an image, “said/the data” logically refers to the set of numerical information necessary to recreate those pixels. Ampex actually appears to acknowledge that conclusion when it argues that “said/the data” means that the data must create the same image as that born of the antecedent data. (D.I. 300 at 20.) The specification clearly teaches that, in digital form, an image is represented by the values of the three components of each pixel. (‘121 patent at 3:19-24.) Therefore, in order for digital data to represent the *same* image, it must represent the *same* luminance, red chrominance, and blue chrominance values for

each pixel of that image. To the extent that the data necessary to achieve the same luminance and chrominance values must be the same bits originally referenced, the claims require that sameness. To the extent any difference in bits can occur and still achieve the same pixel values, and to that extent only, a variation in the bits is contemplated by the claims.

Ampex argues that construing “said/the data” to require the same numerical information would read a preferred embodiment of the invention out of the claims. (D.I. 300 at 21-22.) According to Ampex, the specification sets forth an embodiment of the invention in which a significant amount of processing takes place between the video input and the image store. (*Id.* at 21.) Ampex contends that Defendants’ claim construction is improper because, in this preferred embodiment, the image store cannot contain the same numerical information that was originally supplied by the video input. (*Id.*) Of the asserted apparatus claims, only claim 12 is relevant to this argument because it is the only one that provides for a video input.⁴ Claim 12 recites “[a] video still store system comprising: an external source for supplying a plurality of full size image data sets representative of corresponding full size images; an image store for storing said full size image data sets ...” (‘121 patent at 8:15-24.) Therefore, the critical issue is whether the external source performs the processing before it supplies the data or some other circuitry performs the processing between the external source and the image store.

⁴The other apparatus claims asserted by Ampex do not recite a video input (‘121 patent at cols. 6-10.), and therefore, they are irrelevant to Ampex’s argument that significant processing takes place between the video input and the image store.

Ampex points to two types of processing that are discussed in the specification. First, the specification discloses that “the video input ... will include appropriate video signal decoding means to process video data received from sources that provide the data in an encoded form.” (*Id.* at 3:8-11.) The only element of claim 12 that can be considered a video input circuit is the “external source.” (*Id.* at 8:15-47.) Thus, according to the specification, it appears that the external source itself will perform the decoding process. Contrary to Ampex’s assertion, this processing will not occur between the external source and the image store.

Second, the specification states that “[a]n input analog-to-digital (A-D) converter ... is coupled to receive an input video signal provided by the video input circuit ..., which typically includes video signal processing circuitry that prepares the signal for conversion by the A-D converter ...” (*Id.* at 3:12-14.) Claim 12 states that the “external source” supplies “a plurality of full size image data sets.” (*Id.* at 8:16-18.) As previously discussed, the term “image data set” means numerical information representing the pixel components of a video image. However, the pixel components of a video image only exist after the image has been converted to digital format. (*Id.* at 3:19-24.) Therefore, in claim 12, the analog-to-digital conversion must be performed before the external source can supply “image data sets” to the digital still store system. As a result, this processing cannot occur between the external source and the image store.

Since neither form of processing described in the specification takes place between the video input and the image store, construing the term “said/the data” to mean the same numerical information encompassed by the first reference to “data” does not read a preferred embodiment out of the claims. Moreover, the focus is not on

the exact order of the ones and zeros; it is on the sameness of the image created. As construed above, references to “said/the data” require numerical information representing the same component values for each pixel in the image. Thus, any processing that may occur within the digital still store system, to the extent that it changes binary bit values but still maintains the same pixel values, will not remove the system from the scope of the claims. Again, however, the claims will not cover a system that, in the course of processing the data, changes the values of the luminance and chrominance components.

Finally, Ampex contends that the construction of “said/the data” affects a preferred embodiment of the invention in which the permanent memory component is a magnetic disk store. (D.I. 300 at 22.) Specifically, Ampex relies on expert testimony that “the data actually recorded on the magnetic disk storage system would not be mathematically identical to the data for the video image as stored in the framestore, because ... [it] would be encoded using formats more appropriate for more permanent storage.” (D.I. 309 at 8, ¶ 37.) Specifically, the encoding methods used for magnetic disk drives “would significantly change the actual bits recorded on the magnetic disk drive from their original form.” (*Id.* at 8-9, ¶ 40.) Defendants admit that storage on a magnetic disk drive would change the ones and zeros, but they contend that the values of the pixel components would remain the same. (D.I. 348 at 10.) Accordingly, a magnetic disk drive that changes binary bit values without affecting pixel values will not fall outside the scope of the claims.

In sum, I construe “the video data,” “the video pixel data,” “said video pixel data,” “the data sets,” and “said image data sets” to mean “numerical information representing

the same luminance, red chrominance, and blue chrominance components of each pixel in a video image.”

C. “direct”; “directly”

1. The Parties’ Proposed Constructions

The parties disagree on the meaning of the terms “direct” and “directly,” which are used in claims 7, 8, and 10 to describe the transfer of data. (‘121 patent at 6:36-40, 6:64-7:5, 7:16-20, 7:59-60.) Ampex asserts that “direct” should be construed to mean that the “transfer path is not circuitous or roundabout, and the transferred data is not significantly processed after it has left the providing or sending structure and before it has reached the receiving structure.” (D.I. 305 at 27.) Ampex relies on the prosecution history of the ‘121 patent, dictionary definitions, and expert testimony. (D.I. 300 at 29-30.) Defendants contend that “direct” means “the transfer of data without intervening circuitry.” (D.I. 305 at 27.) In support of their proposed claimed construction, Defendants cite to the prosecution history and the drawing in the ‘121 patent. (D.I. 299 at 14.)

2. The Court’s Construction

Both parties rely heavily on the same portion of the prosecution history as the basis for their proposed claim constructions. The relevant part of the prosecution history is the amendment that added the term “directly” to several of the claims. (D.I. 301 at A-202-204.) Defendants emphasize that, in the course of explaining this amendment, the applicant stated that one of the amended claims recites a “bulk memory means which stores both size images and which transfers either size of the images directly back to the random access memory means, with no other circuit

therebetween.” (*Id.* at A-212-213.) It is from this isolated statement that Defendants draw their proposed claim construction. (D.I. 299 at 14.) However, when this statement is viewed in the context of the entire discussion of the amendment, it does not support Defendants’ proposed construction.

In the amendment cited by Defendants, the term “directly” was added to the claims in order to overcome a rejection based on U.S. Patent No. 4,302,776 to Taylor et al. (“Taylor”). (D.I. 301 at A-171, A-199, A-212-213.) Accordingly, the applicant pointed out the relevant features of Taylor and explained how the amendment distinguished the invention from that reference. (*Id.* at A-212-213.) In particular, the applicant stated that Taylor “must pass a frame of video data through his size changer ... prior to supplying his frame store” and that the “use of a size changer between the two stores is an integral feature of his system.” (*Id.* at A-212.) The applicant claimed that adding “directly” to the claims distinguished the invention because Taylor “fails to teach ... the direct transfer of images between the disc storage and random access memory.” (*Id.* at A-213.) Thus, the term “directly” was intended to mean that data can be transferred between the bulk memory and the random access memory without passing through a size reducer.

In light of the prosecution history as a whole, it would be inappropriate to construe the term “directly” in the way proposed by Defendants. Furthermore, although the drawing in the ‘121 patent does not show any circuitry between the two memory components (see ‘121 patent), I will not limit the meaning of the term “directly” based on the embodiment depicted in a single block diagram. See, e.g., *Beckson Marine, Inc. v.*

NFM, Inc., 292 F.3d 718, 724 (Fed. Cir. 2002) (holding that, in light of other language in the written description, the figures depicting a single preferred embodiment will not be construed as limiting the claim terms). The statements made by the applicant during prosecution indicate that “directly” was intended to mean the transfer of data without intervening size reduction or, by logical extension, other similar processing. (D.I. 346 at 17.) Therefore, I will construe the term “directly” to mean “the transfer of data without intervening processing.”

D. “an input port and an output port”

1. The Parties’ Proposed Constructions

The parties’ dispute whether the claim language “an input port and an output port” requires separate input and output ports, or just a single port capable of performing both input and output functions. In contrast with its argument regarding “video image,” Ampex argues that “input port” and “output port” should be construed separately, rather than in the context of the phrase used in the claims. (D.I. 300 at 34.) Ampex proposes that “port” should be construed to mean “an interface between a communications channel and a unit of computer hardware.” (D.I. 305 at 42.) In accordance with this construction, Ampex asserts that “input port” means “a port for inputting data into the claimed random access memory,” and “output port” means “a port for outputting data from the claimed random access memory.” (*Id.*) Ampex bases its construction on a technical dictionary definition of “port” and the ordinary meaning of “input” and “output.” (D.I. 300 at 34.) Ampex also argues that a RAM with separate input and output ports had a specialized name at the time the ‘121 patent was filed, and that there is no intrinsic evidence to support reading that narrower term into the claims.

(*Id.*)

Defendants assert that “an input port and an output port” should be construed as one phrase meaning a random access memory with “an input port and a separate output port.” (D.I. 305 at 42.) Defendants’ proposal relies on the language of the claim and the one drawing included in the specification of the ‘121 patent. (D.I. 299 at 16.) Defendants also set forth a claim differentiation argument in support of their claim construction. (*Id.* at 16-17.)

2. The Court’s Construction

Although the specification does not state that the random access memory has any particular input or output structure, the language in claims 8 and 14 imposes a limitation. Claims 8 and 14 disclose an apparatus that includes a “random access memory means having an input port and an output port.” (‘121 patent at 6:53-54, 9:1-2.) These claim recite an input port *and* an output port, which suggests that the input port is “structurally distinct” from the output port. *Cf. Gen. Am. Transp. Corp. v. Cryo-Trans, Inc.*, 93 F.3d 766, 769-70 (Fed. Cir. 1996) (holding that claim language requiring “openings ... adjacent *each of* said side walls and ends walls’ ... suggests that the openings adjacent to the side walls are structurally distinct from the openings adjacent to the end walls” (original emphasis)). Thus, the plain language of the claims favors Defendants’ proposed construction.

Defendants’ position that the language in claims 8 and 14 requires separate input and output ports is also supported by the lack of any similar language in claim 7. The doctrine of claim differentiation is often cited for “the presumption that an

independent claim should not be construed as requiring a limitation added by a dependent claim.” *Curtiss-Wright Flow Control Corp. v. Velan, Inc.*, 438 F.3d 1374, 1380 (Fed. Cir. 2006). But, there is also “a presumption that two independent claims have different scope when different words or phrases are used in those claims.” *Seachange Int’l, Inc. v. C-Cor Inc.*, 413 F.3d 1361, 1369 (Fed. Cir. 2005). It must be noted that the doctrine is “not a rigid rule,” and it has been applied cautiously so that parties cannot “broaden claims beyond their correct scope.” *Curtiss-Wright*, 438 F.3d at 1381 (quoting *Laitram Corp. v. Rexnord, Inc.*, 939 F.2d 1533, 1538 (Fed. Cir. 1991); *Fantasy Sports Props., Inc. v. Sportsline.com, Inc.*, 287 F.3d 1108, 1115 (Fed. Cir. 2002)). This concern arises primarily when a party argues that one independent claim must be broader than another because of differences in the claim language. See, e.g., *Seachange*, 413 F.3d at 1369 (holding that the difference in claim language creates a presumption that one independent claim does not require the limitation present in another independent claim). However, in this case, Defendants argue that an independent claim must be narrower than another because it contains language that is not present in the other independent claim. Therefore, the usual concern with applying claim differentiation is not present in this case, and, as a result, the differences between the claims may serve as a “useful guide in understanding the meaning of particular claim terms.” *Phillips v. AWH Corp.*, 415 F.3d 1303, 1314 (Fed. Cir. 2005).

As previously discussed, claims 8 and 14 of the ‘121 patent recite an apparatus comprising, among other elements, a “random access memory means having an input port and an output port.” (‘121 patent at 6:53-54, 9:1-2.) Claim 7 also describes an

apparatus with a “random access memory means,” but makes no reference to any input or output ports. (*Id.* at 6:27-31.) The parties appear to agree that a random access memory must have input and output capability. (D.I. 299 at 16; D.I. 300 at 34-35.) Furthermore, both parties submit that, at the time the patent was filed, a random access memory could have a single port with both input and output capability, or a separate input and output port. (D.I. 346 at 20; D.I. 348 at 29.) Therefore, according to the parties, no language was necessary to specify that the random access memory in claim 7 had input and output capability. This supports Defendants’ proposition that the additional language in claims 8 and 14 serves to specify one of the available input/output structures, namely separate input and output ports.

Ampex argues that this is not the proper construction because a random access memory with separate input and output ports was called a “dual-ported RAM,” and that this specialized term does not appear in any of the intrinsic evidence. (D.I. 300 at 34-35; D.I. 346 at 20.) While that is true, the language that does appear in claims 7, 8, and 14 favors Defendants’ proposed claim construction. Therefore, I will construe the phrase “an input and an output port” to mean “an input port and a separate output port.”

E. “external source”

1. The Parties’ Proposed Constructions

Claim 12 is the only asserted claim that contains the term “external source.” (’121 patent at 8:16-18.) The parties’ dispute whether the source must be external to the entire video still store system or just certain components of the system. Ampex argues that the language and structure of the claim demonstrate that “external source” means “a source of video images outside of the image store.” (D.I. 300 at 35; D.I. 305

at 43.) In contrast, Defendants assert that “external source” should be construed to mean “a source located outside of and at a separate physical location from the physical location of the other components of the video still store system.” (D.I. 305 at 43-44.) Defendants rely on the ordinary meaning of the term, the structure of the claim, and the specification. (D.I. 299 at 17-18.)

2. The Court’s Construction

The structure of claim 12 is especially instructive with regard to the meaning of “external source.” Claim 12 recites “[a] video still store system comprising: an external source ... an image store ... a memory ... a size reducer means ... and means responsive to said memory for displaying the output image.” (‘121 patent at 8:15-47.) Only one component of the video still store system is identified as being “external.” Therefore, a logical reading of the claim is that the “external source” means something physically separate from the other components set forth in the claim, namely the image store, memory, size reducer means, and means for displaying the output image. Ampex argues that because the claim states “said memory being responsive to either the external source or the image store,” the “external source” need only be outside of the image store. (D.I. 300 at 35.) However, the claim language cited by Ampex merely demonstrates that the memory is responsive to two components of the video still store system. Nothing in this language limits the meaning of “external” or contradicts the logical reading of claim 12.

The specification of the ‘121 patent supports construing “external source” to mean a source that is physically separate from the other claimed components of the video still store system. Claim 12 states that the “external source” supplies “a plurality

of full size image data sets.” (‘121 patent at 8:16-18.) According to the specification, the source of video images “may be another electronic still store system, a TV camera, or some other source of video data ...” (*Id.* at 2:65-68.) In all of these examples, the image source would be located outside of the other components of the claimed video still store system.

Ampex contends that “external source” actually means that the source provides images that had been obtained from outside of the video still store system. (D.I. 346 at 21-22.) This argument contradicts not only the specification, but also the plain language of claim 12, in which “external” modifies “source,” not “images.” (‘121 patent at 8:16-18.) In rejecting Ampex’s argument, I do not disagree that the source can provide images that were captured from outside of the still store system. However, both the claim language and the specification indicate that the “source” itself is physically separate from the other claimed components of the video still store system. Therefore, I will construe the term “external source” to mean “a source located outside of and physically separate from the image store, memory, size reducer means, and means for displaying the output image.”

F. Automatic Operation

Ampex requests that all of the claims be construed to require “automatic generation and storage of reduced size images each time a full size image is stored.” (D.I. 300 at 22 (emphasis omitted).) Ampex also asserts that claims 7, 10, 12, 13, and 15 should be construed to disclose a system that will automatically output, transfer, access, or retrieve a plurality of reduced size images. (*Id.* at 22.)

Significantly, the term “automatic” does not appear in any of the claims or the

specification. Ampex argues that this limitation should be read into the claims, but, for the most part, fails to identify any specific claim language to support its effort. Ampex states that the “logic” of the claims supports its proposed construction. (*Id.* at 23.) In particular, Ampex relies on the following claim language: “random access means for storing” and “bulk memory means for receiving” in claim 7, “control means for causing” in claims 8 and 14, and “first store for receiving” and “second store for receiving and storing” in claim 10. (*Id.*) Ampex believes that this language demonstrates that each component of the claimed still store system performs its function without input from the user. (*Id.*) However, the language cited by Ampex simply identifies the components of the still store system and their intended functions. Nothing in this language can be construed to mean that those functions will be performed “automatically” by the claimed system.

Ampex contends that its proposed construction is grounded in the specification and prosecution history of the ‘121 patent. Ampex specifically points to a portion of the specification which states that the multi-image display “is facilitated by generating a quarter sized copy of each newly received image frame and storing both together.” (*Id.* at 24; ‘121 patent, Abstract.) Ampex also argues that because the specification describes the ‘121 patent as an improvement over the related prior art, it must at least contain the basic features of that prior art. (D.I. 300 at 24.) According to Ampex, since earlier still store systems generated reduced size images automatically, the system claimed in the ‘121 patent must also operate automatically. (*Id.*) Finally, Ampex refers to a section of the prosecution history in which the examiner stated that an “apparent novelty” of the claimed invention is that “the ‘frame’ of video, containing both resolution

copies, is non-selectively produced for all images that are stored.” (D.I. 301 at A-056.)

Notwithstanding the intrinsic evidence presented by Ampex, a proposed claim construction must be rooted in the language of the claims. *Bayer AG v. Biovail Corp.*, 279 F.3d 1340, 1348 (Fed. Cir. 2002). “While a court may look to the specification and prosecution history to interpret what a patentee meant by a word or phrase in a claim, extraneous limitations cannot be read into the claims from the specification or prosecution history.” *Id.* Ampex argues that the intrinsic evidence discussed above demonstrates that *all* of the claims in the ‘121 patent require the automatic generation and storage of reduced size images. (D.I. 300 at 22.) Yet, Ampex does not show how the evidence can be used to construe any specific terms in the claims. Thus, Ampex is essentially asking that a feature be read into the claims; a task that the court is not permitted to undertake. The Federal Circuit has consistently held that “interpreting what is meant by a word in a claim ‘is not to be confused with adding an extraneous limitation appearing in the specification, which is improper.’” *Intervet Am., Inc., v. Kee-Vat Labs., Inc.*, 887 F.2d 1050, 1053 (Fed. Cir. 1989) (quoting *E.I. du Pont de Nemours & Co. v. Phillips Petroleum Co.*, 849 F.2d 1430, 1433 (Fed. Cir. 1988)). It would seem obviously still more improper to add a limitation that appears no where in the specification.

With that said, Ampex does ask the court to construe specific language in some of the claims which is closely related to the idea of automatic operation. In particular, Ampex asserts that the phrase “responsive to” in claims 7, 8, 12, and 14 is indicative of automatic operation. (D.I. 300 at 25.) Ampex also points to the term “selectively generating” in claim 7 and the term “selective transfer” in claim 14. (*Id.* at 31-32.)

Therefore, those terms are construed below.

1. “responsive to”

a. The Parties’ Proposed Constructions

Ampex asserts that “responsive to,” in the context of the claim language, means that “the claimed operations are performed automatically under processor control, without the operator orchestrating each step.” (D.I. 305 at 29-30.) To support its proposed construction, Ampex relies primarily on the prosecution history of the ‘121 patent. (D.I. 300 at 25; D.I. 346 at 31-33.) On the other hand, Defendants’ contend that “responsive to” means “to be coupled to the random access memory so as to be able to receive data from the random access memory.” (D.I. 305 at 28.) Defendants base their construction on the plain language of the claims and the specification. (D.I. 299 at 31-32.)

b. The Court’s Construction

During prosecution of the ‘121 patent, the applicant made an amendment that is directly related to the meaning of the term “responsive to.” Specifically, the examiner rejected several claims based on a publication by Hugh Boyd, Quantel (“Boyd”). (D.I. 301 at A-091, A-108.) In order to overcome the rejection, the phrase “in response to” was added to two of the claims. (*Id.* at A-104-105.) The applicant argued that these two claims were amended to reflect that the size reducer produced reduced size images “in response to” the writing of full size image data into the frame store. (*Id.* at A-108.) Most significantly, the applicant then distinguished the Boyd reference on the basis that Boyd did not teach the “responsive use of the size reducer” because “[t]o perform such an operation with the Boyd system an operator would have to orchestrate

each step.” (*Id.*) Thus, the phrase “in response to” was used to indicate that size reduction was performed automatically upon the writing of data into the frame store, without any command from the operator.

As Defendants point out, the two claims that were amended to include the phrase “in response to” were rejected by the examiner and later cancelled by the applicant. (*Id.* at A-121.) What Defendants fail to acknowledge is that the examiner determined that those two claims would be allowable if rewritten to overcome an indefiniteness rejection under 35 U.S.C. § 112. (*Id.* at A-112, A-114.) Therefore, amending the claims to recite the responsive use of the size reducer was the key to overcoming the prior art rejection. As a result, when new claims were added to the application (*id.* at A-156), the applicant distinguished the Boyd reference on the same basis (*id.* at A-163-164). Specifically, the applicant explained that “[t]his system obviously has a major advantage over the Boyd, Quantel system ... because the Boyd, Quantel reference does not store a reduced size image automatically with the full size counterpart each time a full size image in the frame buffer is to be stored on disk.” (*Id.*)

Defendants also contend that the claims in the ‘121 patent are significantly different than the language that Ampex cited to in the prosecution history. (D.I. 299 at 34.) It is true that claims 7, 8, and 14 recite a size reducing means that is “responsive to said random access memory” (‘121 patent at 6:41-42, 6:64-64, 9:12-13), rather than the original language, which stated that the size reducer operated in response to the writing of full size image data into the frame store. However, the amendment which added the phrase “responsive to” (D.I. 301 at A-181) makes clear that this language

was meant to describe the same distinguishing feature of the invention. In that amendment, the applicant explained that the “size reducer ... is responsive to the frame store to supply a reduced size image at such time as only a full size image is stored in the frame store.” (*Id.* at A-192.)

Based on the prosecution history, I will construe the phrase “responsive to” to mean “performs its function automatically under the control of.” Accordingly, in claim 7, the phrase “means responsive to said random access memory means” will be construed to mean that “the means performs its function automatically under the control of said random access memory means.” Similarly, in claims 8 and 14, the phrase “size reducing means responsive to said random access memory means” will be construed to mean that “the size reducing means performs its function automatically under the control of said random access memory means.” Finally, in claim 12, “said memory being responsive to either the external source or the image store” will be construed to mean that “said memory performs its function automatically under the control of either the external source or the image store.” My construction is strictly limited to the “responsive to” language. I do not find that all of the claims require the automatic generation and storage of reduced size images each time a full size image is stored. Further, I do not find that every component in the system performs its functions automatically.

2. “selectively generating”; “selective transfer”

a. The Parties’ Proposed Constructions

Ampex asserts that “selective” means “characterized by selection,” and “select” means “chosen in preference to another or others.” (D.I. 305 at 14.) Ampex requests

that “selectively generating” be construed to mean that “without the operator orchestrating each step, the claimed means automatically determines whether to generate a reduced size version and generates it in those cases.” (*Id.* at 31.) Similarly, Ampex argues that “selective transfer” should be construed to mean that “without the operator orchestrating each step, the claimed means automatically determines whether to generate a reduced size version and generates it in those cases, and transfers the reduced size image so generated to random access memory.” (*Id.*) In support of its position that the selection is made “automatically” by the claimed system, Ampex relies on the prosecution history of the ‘121 patent, as well as expert testimony. (D.I. 300 at 32.)

Defendants claim that “selective” and “selectively” mean “the ability to chose (i.e., select).” (D.I. 305 at 14.) Accordingly, Defendants ask that “selectively generating” be construed to mean that “there is the ability to choose (i.e., select) whether to generate reduced size images,” and that “selective transfer” be construed to mean that “there is the ability to choose (i.e., select) whether to transfer the reduced size images from the size reducer through random access memory to bulk memory.” (*Id.*) The basis for Defendants proposed claim construction is the ordinary meaning of the term “select,” the plain language of the claims, and specification. (D.I. 299 at 19-21.) Defendants disagree with Ampex’s argument that the claimed system “automatically” makes the selection. (*Id.* at 21-22.)

b. The Court’s Construction

The parties appear to agree that the ordinary meaning of the terms “selective” and “selectively” involves choice. (*Id.* at 19; D.I. 300 at 32.) The parties also seem to

be in agreement that “selectively generating” means “to choose whether to generate” and “selective transfer” means “to choose whether to transfer.” (D.I. 299 at 19; D.I. 300 at 32.) The only dispute is as to whether the system or the user performs the selection. Ampex admits that the terms “selective” and “selectively” do not mean that the selection is performed “automatically” by the system. (D.I. 346 at 23.) And, Ampex points to no other language in the claims that can be construed to mean “automatically.” Rather, Ampex argues that the purpose of the invention requires that “automatically” be read into the claims. (D.I. 300 at 32; D.I. 346 at 24.) Ampex also provides a statement from the prosecution history, which it claims confirms that the system itself performs the selection.⁵ (D.I. 300 at 32.) But, Ampex does not show how these general explanations of the invention relate to any of the specific language in the claims. As discussed above, the specification and prosecution history cannot be used to read limitations into the claims that have no support in the claim language. See *Bayer AG*, 279 F.3d at 1348. Therefore, I will construe “selectively generating” to mean “to choose whether to generate,” and “selective transfer” to mean “to choose whether to transfer.”

G. Order of Operations and Steps

1. The Parties' Proposed Constructions

The parties dispute whether the claims require that the operations and steps be performed in a specific order. Ampex asserts that, in all of the claims, the reduced size

⁵“Applicant’s invention ... as described and claimed, provides image reduction via his size reducer (26) coupled only to the frame store (22), *and which receives the full size image only from the frame store whenever there is no reduced size image*, and which then returns the reduced size image directly back to the frame store for storage thereof simultaneously with the corresponding full size image.” (D.I. 300 at 32 (emphasis added by Ampex).)

image must be generated prior to storage of the full and reduced size images. (D.I. 300 at 22.) Ampex argues that the structure of the claims, the specification, and the prosecution history support its proposed claim limitation. (*Id.* at 23-25.) Defendants contend that none of the claims require a specific order because there is no basis in the actual claim language. (D.I. 348 at 15.) Defendants also argue that Ampex's reliance on the specification and prosecution history is misplaced. (*Id.* at 15-16.)

2. The Court's Construction

Ampex asserts that both the apparatus and method claims require that the reduced size image be generated before the images are stored. (D.I. 300 at 22.) With respect to claims 7, 8, 10, 12, and 14, which are the apparatus claims at issue, neither the language nor the structure of these claims demonstrates that the reduced size image must be generated prior to storage of the images. Ampex does not cite any language in these claims as explicitly stating an order of operation. Rather, Ampex argues that because the claims recite a bulk memory for storing both the full and reduced size images, the reduced size image must be generated before either is stored in the memory. (*Id.* at 23.) However, simply because the bulk memory may be used to store both size images does not mean that it cannot store a full size image without a reduced size version. This is illustrated by the fact that some of the apparatus claims also recite a random access memory for storing the full and reduced size images. ('121 patent at 6:27-31, 8:25-32) Ampex admits that full size images are stored in the random access memory before creation of the reduced size version. (D.I. 300 at 4.) Thus, Ampex's argument is not persuasive.

Ampex also submits that the purpose of the invention and the preferred

embodiment compel its proposed construction. (*Id.* at 23-25.) Ampex cites to a section of the prosecution history in which the examiner stated that an “apparent novelty” of the claimed invention is that “size reduction and production of the ‘frame’ of video data is performed by the interaction between the size reducer and the frame store prior to storage in the image store.” (D.I. 301 at A-056.) As discussed above, descriptions of the invention in the specification and prosecution history may be helpful in construing the claim language. *Bayer AG*, 279 F.3d at 1348. However, a feature that has no support in the claim language will not be read into the claims. *Id.* Since there is no language in the apparatus claims that can be construed to require a specific order of operation, I will not read one into claims 7, 8, 10, 12, and 14.

In contrast, the methods set forth in claims 11, 13, and 15 do contain language that requires the steps to be performed in a specific order. The general rule is that the steps of a method claim are not construed to require an order, unless they actually recite an order. *Altiris, Inc. v. Symantec Corp.*, 318 F.3d 1363, 1369 (Fed. Cir. 2003). Ampex does not argue that there is any language in the claims which explicitly sets forth an order. However, even if a method claim does not recite an order, there is a two-part test for determining if the steps must nonetheless be performed in the order in which they are written. *Id.* First, the court should determine whether the claim language, “as a matter of logic or grammar,” requires that the steps be performed in the order written. *Id.* Second, the court can look to the rest of the specification to determine whether it explicitly or implicitly requires such a construction. *Id.* at 1370.

The logic of claims 11, 13, and 15 requires that the reduced size image be

generated before the images are stored in the bulk memory. For example, claim 11 reads as follows:

A method of storing video pixel data comprising:
receiving and storing in selected storage locations in a random access memory, full video pixel data comprising a full size image;
generating from the full video pixel data, reduced video pixel data representing a reproduction thereof in the form of a reduced size image at a lower resolution;
storing the reduced video pixel data representing the reduced size image in additional storage locations in said random access memory along with the full video pixel data;
storing both the full size image and the reduced size image in bulk storage memory; and
selectively transferring either the full size image or the reduced size image from said bulk storage memory into said random access memory for further processing.

(‘121 patent at 7:65-8:14.) The step dealing with storage in the bulk memory states that both the full and reduced size image are stored in the bulk memory. There is no step for storing only the full size image in the bulk memory. Therefore, logically, the step which generates the reduced size image must be performed before both images can be stored in the bulk memory. When a subsequent step references something which indicates that a prior step had been performed, the steps of the method claim must be performed in the order written. *Mantech Envtl. Corp. v. Hudson Envtl. Servs., Inc.*, 152 F.3d 1368, 1375-76 (Fed. Cir. 1998). In every method claim at issue, the storage step requires that both the full and reduced size image be stored. (‘121 patent at 7:65-8:14, 8:48-64, 10:8-33.) Therefore, I will construe claims 11, 13, and 15 to require the generation of a reduced size copy prior to storage of a full size image in the memory.

H. “corresponding”

1. The Parties’ Proposed Constructions

Ampex asserts that “corresponding” should be construed to mean “having a working relationship.” (D.I. 305 at 11.) Of the claims asserted by Ampex in this case, claim 7 recites a “corresponding reduced size version,” claim 12 recites a “corresponding one of said reduced size image data sets,” and claims 13 and 15 recite a “corresponding plurality of reduced size reproduction images.”⁶ (‘121 patent at 6:29-30, 8:26-27, 8:53-54, 10:15-16.) Ampex states that, in the context of these claims, “corresponding” requires that “a relationship be maintained between each full size image and the reduced size image generated from that full size image.” (D.I. 305 at 11-12.) Ampex bases its proposed construction on a dictionary definition, the specification, the purpose of the invention, the prior art cited in the ‘121 patent, and expert testimony. (D.I. 300 at 26-28.) Defendants, however, argue that a “corresponding” reduced size image is “one that relates to a full sized image in that it is a smaller (lower resolution) version of the full sized image.” (D.I. 305 at 11.) To support their position, Defendants rely on the language of the claims and the specification. (D.I. 299 at 28-29.)

2. The Court’s Construction

Although Defendants argue otherwise, the specification of the ‘121 patent does establish that a “relationship” is maintained between each full size image and the reduced size image generated from that full size image. The specification explains that

⁶Claim 10 also includes the term “corresponding,” but does not use it to describe the relationship between a full size image and its reduced size version. (‘121 patent at 7:36-41.)

the full and reduced size images are stored together. ('121 patent, Abstract.) More specifically, when a "frame of video data is transferred from [the] frame store ... to [the] disk store ... for more permanent storage, both the full resolution and the quarter resolution copy are transferred." (*Id.* at 4:16-19.) In order for the still store system to transfer a full size image and its reduced size copy between memory components, the two images must have a relationship that can be detected by the system. Otherwise, it would be impossible for the system to determine which two images were being transferred.

Ampex argues that the browse function of the still store system supports the existence of a working relationship. (D.I. 300 at 26.) According to Ampex, the browse function permits a user to select one of the reduced size images in a multi-image display, and the still store system will retrieve its full size version. (*Id.*) Although not described in much detail, the specification does support this capability. The specification states that the still store system allows "an editor ... to view and compare several images at the same time for the purpose of selecting those images which will be used in a television broadcast." ('121 patent at 1:27-34.) This statement can be understood to mean that an editor can view several reduced size images at once and then "select" which full size versions to use in the broadcast. This ability to retrieve a full size image based on its reduced size copy clearly requires that a relationship be maintained between the two versions of each image.

There is another feature of the still store system disclosed in the specification which supports Ampex's proposed construction. The specification states that "[w]hen video data received from [the] disk store ... does not contain a corresponding quarter

spatial resolution copy, [the] size reducer ... may be employed to generate a quarter spatial resolution copy for subsequent transfer to either [the] frame store ... or [the] disk store ..." (*Id.* at 4:7-12.) Unless a relationship exists between the full and reduced size versions of an image, the still store system would not be able to determine whether a full size image already has a reduced size copy. While Ampex admits that this feature is optional and is not recited in any of the claims at issue (D.I. 300 at 28, n.12), the still store system must be able to support this function. Therefore, based on the portions the specification discussed, I will construe "corresponding" to mean that "a relationship is maintained between each full size image and the reduced size image generated from that full size image."

I. Size Reducer Transfers and Receives Data Only From RAM

1. The Parties' Proposed Constructions

Ampex asserts that claims 7, 8, and 10 recite a size reducer that transfers and receives data only from the random access memory. (D.I. 300 at 31.) In support of its proposed construction, Ampex relies on the plain language of the claims and the prosecution history. (D.I. 346 at 37-39.) Defendants argue that there is no intrinsic evidence to support Ampex's proposed claim construction. (D.I. 299 at 37.) Further, Defendants contend that the specification and prosecution history actually contradict Ampex's position. (*Id.*)

2. The Court's Construction

There is nothing in the language of claims 7, 8, and 10 that requires the size reducer to communicate only with the random access memory. For example, the language that Ampex cites to in claim 7 is as follows:

means responsive to said random access memory means for selectively generating one of said corresponding reduced size versions from the respective full size image in said random access memory means, and for transferring the video pixel data representing [sic] and the corresponding reduced size version back to the contents of said random access memory means.

('121 patent at 6:41-48.) This claim language demonstrates that the size reducer receives video pixel data from the random access memory, creates a reduced version of the image, and then transfers the video pixel data back to the random access memory. However, it does not state that the size reducer communicates only with the random access memory. Nothing in this language precludes the size reducer from transferring to or receiving data from other components in the still store system. Since Ampex can point to no specific claim language⁷ that supports its proposed construction, I will not read a limitation into the claims.

V. CONCLUSION

Accordingly, for the foregoing reasons, the disputed claim terms will be construed as follows:

Claim Term	The Court's Construction
"video image"	"an electronic signal representation of visual information displayable in visual form on a monitor or other display device."
"video still store"	"a system capable of storing still video images."
"video data"; "video pixel data"; "data"	"numerical information representing the

⁷Ampex's reliance on a submission made during the prosecution history is again misplaced, since the prosecution history can clarify claim language but cannot create limitations that are not in the claim itself. See *supra* at 26.

“video data”; “video pixel data”; “data set”; “image data set”

“numerical information representing the luminance, red chrominance, and blue chrominance components of each pixel in a video image.”

“the video data”; “the video pixel data”; “said video pixel data”; “the data sets”; “said image data sets”

“numerical information representing the same luminance, red chrominance, and blue chrominance components of each pixel in a video image.”

“direct”; “directly”

“the transfer of data without intervening processing.”

“an input port and an output port”

“an input port and a separate output port.”

“external source”

“a source located outside of and physically separate from the image store, memory, size reducer means, and means for displaying the output image.”

“responsive to”

“performs its function automatically under the control of.”

“selectively generating”

“to choose whether to generate.”

“selective transfer”

“to choose whether to transfer.”

order of steps (claims 11, 13, and 15)

Claims 11, 13, and 15 require the generation of a reduced size copy prior to storage of a full size image in the memory. The other claims at issue do not require an order of operation.

“corresponding”

“a relationship is maintained between each full size image and the reduced size image generated from that full size image.”

size reducer transfers and receives data only from RAM

Claims 7, 8, and 10 do not require that the size reducer transfer and receive data only from RAM.

An appropriate order will follow.